

Claims

What is claimed is:

- 1) A wellbore apparatus comprising:
 - a) an outer permeable material;
 - b) a first basepipe section wherein at least a portion of the basepipe is perforated, the first basepipe is inside the outer permeable material and at least part of the perforated basepipe is designed to be adjacent to a production interval;
 - c) a second basepipe section wherein at least a portion of the second basepipe is slotted, the second basepipe is inside the outer permeable material and above the perforated basepipe section designed to be adjacent to the production interval wherein at least a portion of the slotted basepipe is designed to be adjacent to a non production section of the wellbore;
 - d) the first and second basepipes providing a three-dimensional surface defining a fluid flow path through the wellbore.
- 2) The wellbore apparatus of claim 1 wherein the outer permeable material is a well-screen.
- 3) The wellbore apparatus of claim 1 wherein the slotted basepipe slots are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.
- 4) The wellbore apparatus of claim 1 wherein the number of the slots is large enough for the friction of fluid flow through the slots to be comparable to or not much greater than the friction across the outer permeable media.
- 5) The wellbore apparatus of claim 1 further comprising alternate path technology shunts in the outer permeable member.

- 6) The wellbore apparatus of claim 1 wherein the wellbore is a open-hole wellbore and at least part of the second basepipe section is above a casing shoe.
- 7) The wellbore apparatus of claim 1 wherein the wellbore is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.
- 8) A wellbore apparatus, comprising:
 - a) an outer permeable material;
 - b) a perforated basepipe section inside the outer permeable material wherein at least part of the perforated basepipe is designed to be adjacent to a production interval of a wellbore;
 - c) a slotted basepipe section inside the outer permeable material and above the perforated basepipe section designed to be adjacent to the production interval wherein at least a portion of the slotted basepipe is designed to be adjacent to a non perforated section of the wellbore; and
 - d) the perforated and slotted basepipes providing a three-dimensional surface defining a fluid flow path through the well.
- 9) The wellbore apparatus of claim 8 wherein the outer permeable material is well-screen.
- 10) The wellbore apparatus of claim 8 wherein the slotted basepipe slots are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.
- 11) The wellbore apparatus of claim 8 wherein the number of the slots is large enough for the friction of fluid flow through the slots to be comparable to or not much greater than the friction across the outer permeable media.

- 12) The wellbore apparatus of claim 8 further comprising alternate path technology shunts in the outer permeable member.
- 13) The wellbore apparatus of claim 8 wherein the wellbore is an open-hole wellbore and at least part of the second basepipe section is above the casing shoe above the production interval.
- 14) The wellbore apparatus of claim 8 wherein the production interval is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.
- 15) A wellbore comprising:
 - a) an outer permeable material in the wellbore;
 - b) a first basepipe section with at least a portion of the basepipe is perforated, the first basepipe is inside the outer permeable material and at least part of the perforated basepipe is adjacent to a production interval;
 - c) a second basepipe section with at least a portion of the second basepipe inside the outer permeable material and above the perforated basepipe section designed to be adjacent to the production interval wherein at least a portion of the slotted basepipe is adjacent to a non production section of the wellbore; and
 - d) the first and second basepipes providing a three-dimensional surface defining a fluid flow path through the well.
- 16) The wellbore of claim 15 wherein the outer permeable material is well-screen.
- 17) The wellbore of claim 15 wherein the slotted basepipe slots are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.

- 18) The wellbore of claim 15 wherein the number of the slots is large enough for the friction of fluid flow through the slots to be comparable to or not much greater than the friction across the outer permeable media.
- 19) The wellbore of claim 15 further comprising alternate path technology shunts in the outer permeable member.
- 20) The wellbore of claim 15 wherein the wellbore is a open-hole wellbore and at least part of the second basepipe section is above the casing shoe.
- 21) The wellbore of claim 15 wherein the wellbore is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.
- 22) A wellbore comprising:
 - a) a wellbore wherein the wellbore comprises at least one perforated section within a hydrocarbon production interval and at least one non perforated section above the perforated section;
 - b) an outer permeable material in the wellbore;
 - c) a perforated basepipe section inside the outer permeable material wherein at least part of the perforated basepipe is adjacent to a production interval;
 - d) a slotted basepipe section inside the outer permeable material and above the perforated basepipe section adjacent to the production interval wherein at least a portion of the slotted basepipe is adjacent to a non perforated section of the wellbore; and
 - e) the perforated and slotted basepipe providing a three-dimensional surface defining a fluid flow path through the well.
- 23) The wellbore of claim 22 wherein the outer permeable material is well-screen.

24) The wellbore of claim 22 wherein the slotted basepipe slots are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.

25) The wellbore of claim 22 wherein the number of the slots is large enough for the friction of fluid flow through the slots to be at least equal to the friction across the outer permeable media.

26) The wellbore of claim 22 further comprising alternate path technology shunts in the outer permeable member.

27) The wellbore of claim 22 wherein the wellbore is a open-hole wellbore and at least part of the second basepipe section is above the casing shoe.

28) The wellbore of claim 22 wherein the wellbore is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.

29) A method of completing a wellbore, comprising;

a) providing a wellbore apparatus comprising an outer permeable material, a first basepipe section with at least a portion of the basepipe is perforated, the first basepipe is inside the outer permeable material and at least part of the perforated basepipe is designed to be adjacent to a production interval, and a second basepipe section with at least a portion of the second basepipe is slotted, the second basepipe is inside the outer permeable material and above the perforated basepipe section designed to be adjacent to the production interval wherein at least a portion of the slotted basepipe is designed to be adjacent to a non production section of the wellbore, the first and second basepipes providing a three-dimensional surface defining a fluid flow path through the wellbore; and

b) installing the wellbore apparatus in a wellbore wherein at least part of the perforated basepipe inside the outer permeable material is adjacent to a production

interval and at least part of slotted basepipe inside the outer permeable material is adjacent to a non production section of the wellbore.

- 30) The method of claim 29 further comprising gravel packing the wellbore.
- 31) The method of claim 29 further comprising producing hydrocarbons from the wellbore.
- 32) The method of claim 29 wherein at least part of the perforated basepipe is adjacent to the production interval that is cased with perforations and at least a portion of the slotted basepipe is adjacent to a non perforated section of the wellbore.
- 33) The method of claim 29 wherein the outer permeable material is a well-screen.
- 34) The method of claim 29 wherein the slotted basepipe slots are at least large enough to permit passage of residual mud and formation fines and small enough to retain gravel.
- 35) The method of claim 29 wherein the number of the slots is large enough for the friction of fluid flow through the slots to be at least equal to the friction across the outer permeable media.
- 36) The method of claim 29 further comprising alternate path technology shunts in the outer permeable member.
- 37) The method of claim 29 wherein the wellbore is a open-hole wellbore and at least part of the second basepipe section is above the casing shoe.
- 38) The method of claim 29 wherein the wellbore is a cased-hole wellbore with a perforated interval and at least part of the second basepipe section is above a casing shoe above the perforated interval.